

TORCH

Thermally-controlled Operational Reliability Chip Tester

Lighting the Path to Reliable Defense Microelectronics

Astronics Test Systems (ATS) is a trusted and experienced provider of automated test solutions, serving the industry for over 60 years. With the rise of high-power RF devices, such as Gallium Nitride (GaN) for telecom infrastructure and defense applications, ATS is proud to offer a massively parallel reliability test solution to meet the demands of this emerging market, TORCH.

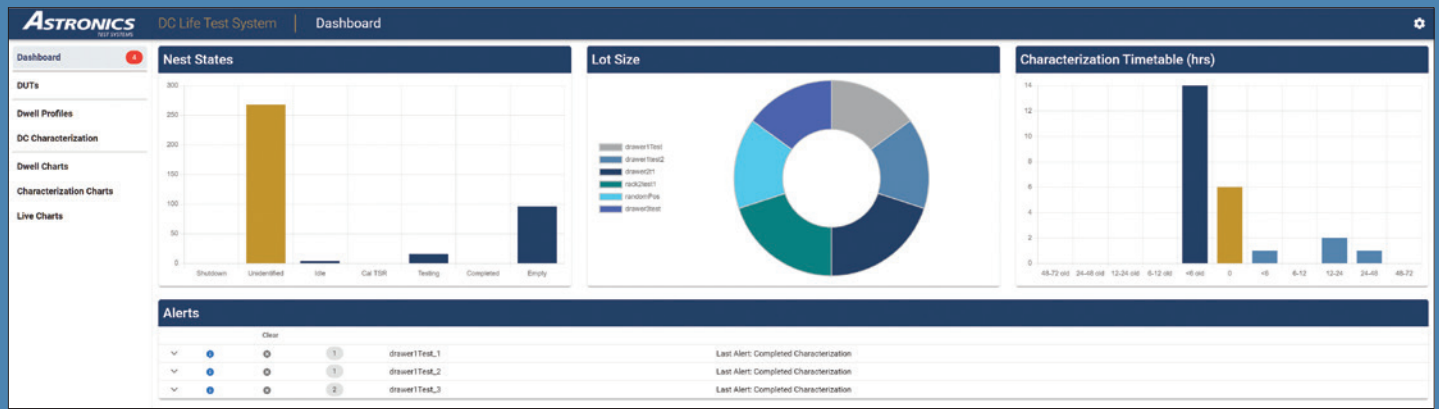


Tame the Complexity of Reliability Testing

TORCH simplifies reliability testing with its massively parallel accelerated thermal operational test. With the capability to simultaneously test up to 384 sites/DUTs with independent test profiles and parameters, this platform is ideal for scaling operations over

time. We remove the labor-intensive and time-consuming manual process that is prone to handling faults, and through our state-of-the-art technology, we provide automation that streamlines test activities.

The intuitive graphical user interface allows quick and easy creation of pre-configured or custom profiles. Operators can also conveniently view and select from a variety of tests or charts in one place.



TORCH Overview

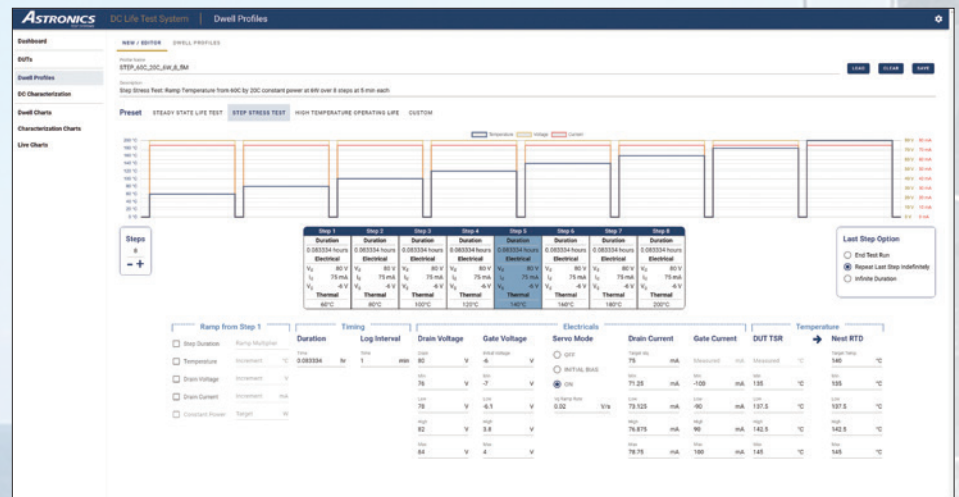
• In-Situ Dwell Test Modes:

- High-Temperature Operating Life (HTOL)

- » Gate voltage is served at a programmable ramp rate until target drain current is reached and then switched to constant gate voltage. Voltage and current on gate, drain, and source are continuously monitored.

- Steady-State Life (SSL)

- » Device is loaded in a user-defined “steady-state” condition with programmable ramp rate and servo options. Voltage and current on gate, drain, and source are continuously monitored. The number and durations of steps with high-accuracy characterization tests in between are fully customizable.

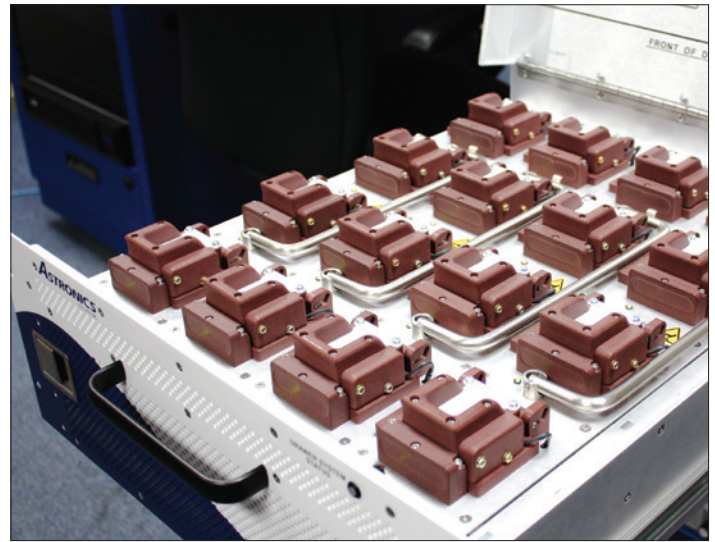


- Step Stress Testing (SST)

- » Device parameters, such as temperature, voltage, and current can be preprogrammed to “step” throughout the duration of the test cycle with customizable characterization steps in between. Voltage and current on gate, drain, and source are continuously monitored.

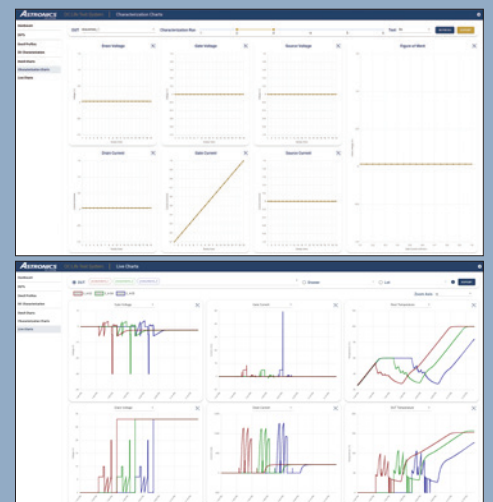
- Fully Customizable Profiles

- In-Situ Characterization: High-Precision voltage and current SMU stimulus and measurement capability for device characterization before and after dwell testing
- Includes intuitive profile management, operation, charting, and data logging features
- Not just a single DUT, but up to x384 simultaneously
- All 384 DUTs / test sites can be controlled and monitored independently of other DUTs
- Independent temperature control of each DUT from ambient to 200 °C, ± 1.0 °C
- Robust and reliable air-cooled tester (no refrigerant)



Rack 1										Rack 2										Rack 3										Rack 4									
Drawer 1	Drawer 2	Drawer 3	Drawer 4	Drawer 5	Drawer 6	Drawer 1	Drawer 2	Drawer 3	Drawer 4	Drawer 5	Drawer 6	Drawer 1	Drawer 2	Drawer 3	Drawer 4	Drawer 5	Drawer 6	Drawer 1	Drawer 2	Drawer 3	Drawer 4	Drawer 5	Drawer 6																
Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present										

Selected DUTs									
Part No.	Rev	Lot No.	Lot Date	Lot Size	Lot Status	Lot Type	Lot Desc	Lot Qty	Lot Unit
2_101	Setup Dwell	0.01	0.03	0.00	0.00	0.000000	0.000000	0.000000	0.000000
2_102	Chr SBD	0.01	0.03	0.00	0.00	0.000000	0.000000	0.000000	0.000000
2_103	Chr SBD	0.01	0.03	0.00	0.00	0.000000	0.000000	0.000000	0.000000
2_104	Chr SBD	0.01	0.03	0.00	0.00	0.000000	0.000000	0.000000	0.000000
2_105	Chr SBD	0.01	0.03	0.00	0.00	0.000000	0.000000	0.000000	0.000000
2_106	Chr PWR	0.01	0.03	0.00	0.00	0.000000	0.000000	0.000000	0.000000
2_107	Present	0.00	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.000000
2_108	Present	0.00	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.000000
2_109	Present	0.00	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.000000
2_110	Present	0.00	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.000000



Building Blocks Approach

ATS offers a customizable COTS solution, and our engineer-to-engineer approach ensures the right solution for your test needs by taking into consideration the following building blocks:

- Automation options (fully, semi-automatic, manual)
- Measurement science (best practices and innovation)
- Additional insertions (based on test strategy and defect mechanisms)
- RF shielded enclosures (for true performance measurement)
- User-friendly software (for ease of use and data retrieval/archiving)
- Tester resources (for both test and operation)
- Carrier/test fixtures (for workflow transport)
- Test strategy and plan (to validate device performance and screen defects)
- Test methodology
- Cost of test (parallelism and total cost of ownership)
- Product life cycle (design for obsolescence)
- Maintenance strategy (installation, footprint, and maximizing uptime)
- Production plan (labels, serial numbers, traceability, and training)
- Open Architecture System Components

ELECTRICAL SPECIFICATIONS

Measurement		Range	Resolution	Accuracy +/- (%Read + Offset)
Drain	Voltage	0 to 130 V	5.0mV	.5% + 10mV
	Current Range 2	0 to 2000 mA	100uA	.5% + 5mA
	Current Range 1	0 to 100 mA	1uA	Compliance 0-50V: 0.5% + 25uA; 50-80V: 0.5% + 50uA; 80-130V: 0.5% + 100uA
Gate	Voltage	-30.0 to 10 V	100uV	.5% + 500uV
	Current Range 2	+/-100 mA	1uA	.5% + 100uA
	Current Range 1	+/-10 mA	1uA	.5% + 50uA
Source	Voltage	-30.0 to 10 V	100uV	.5% + 500uV
	Current	1 to -2000 mA	100uA	.5% + 500uA
Stimulus		Range	Resolution	Accuracy +/- (%Out + Offset)
Drain	Voltage	130 V	5.0mV	1% + 50mV
	Current	0 to 2000 mA	100uA	1% + 1mA
Gate	Voltage	-30.0 to 10 V	1mV	1% + 25mV
	Current Range 2	+/-100 mA	10uA	1% + 500uA
	Current Range 1	+/-10 mA	1uA	1% + 50uA
Source	Voltage	-30.0 to 10 V	1mV	1% + 25mV
	Current	1 to -2000 mA	100uA	1% + 500uA
	GND + FLOAT			



TORCH is scalable for your needs, up to four racks.

CONTACT US TO GET STARTED

Put Astronics Test Systems' history of innovation and engineering expertise to work for you.

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TORCH is built on a foundation of modular instruments, ensuring platform sustainability for the future. Our open architecture approach offers the flexibility to customize the solution to meet your specific needs.